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ARCHER DANIELS MIDLAND COMPANY 4666 FARIES PARKWAY DECATUR, IL 62526				
EXAMINER SCHMIDTMANN, BAHAR				
ART UNIT		PAPER NUMBER		
1623				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/550,748

**Applicant(s)**

THIBODEAU ET AL.

**Examiner**

BAHAR SCHMIDTMANN

**Art Unit**

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 10-22, 26-28 and 31-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 23-25, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 April 2011 has been entered.

This Office Action is in response to Applicant's Amendment and Remarks filed on 12 April 2011 in which claim 35 was canceled, and claim 1, the independent claim was amended to change the scope and breadth of the claims.

Claims 1-34 are pending in the current application. Claims 10-22, 26, 27 and 31-34 remain withdrawn as being drawn to a non-elected invention. Claim 28 is rejoined since it reads on the expanded species carboxymethyl cellulose (see Office Action dated 26 February 2010). Claims 1-9, 23-25 and 28-30 are examined on the merits herein.

### **MODIFIED REJECTIONS**

The following are new ground(s) or modified rejections necessitated by Applicant's amendment, filed on 12 April 2011, where the limitations in pending claims 1, the independent claim as amended now have been changed, and claim 35 has been canceled. Therefore, rejections from the previous Office Action, dated 12 November 2010, have been modified and are listed below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-9, 23, 24, 25 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grossmann et al. (*Carbohydrate Polymers*, 45, 2000, 347-353, cited in previous Office Action) as evidenced by Sigma Aldrich (cited in previous Office Action) in view of Hirsch et al. (*Cereal Chemistry*, 2002, cited in previous Office Action) in further view of Feil (EP 0900807, cited in previous Office Action).**

Grossmann teaches cassava starch was cross-linked with sodium trimetaphosphate and sodium hydroxide and extruded and ground in an alpine mill to pass through an 80 mesh sieve (p.347-348, 2.2.Preparation of cross-linked starch).

According to Sigma Aldrich, an 80 mesh sieve results in particles having a 177  $\mu\text{m}$  size. Grossman teaches the purpose of extrusion cooking is advantageous in that it results in lower cost, less waste and faster reaction time (p.347, *1. Introduction*, third paragraph). Grossman teaches the water absorption index increased when the sodium hydroxide concentration and temperature of the extrusion process were increased (p.349, *3.2. Water absorption, water solubility and clarity*, first paragraph). Grossman also teaches the cross-linking with the sodium trimetaphosphate increased water absorption (p.349, last paragraph to p.350, first paragraph).

Grossman does not expressly disclose the cassava having an amylopectin content of 90% (w/w) or that it is waxy (instant claim 1 and 4). Grossman does not expressly disclose a free swell capacity and centrifuge retention capacity (instant claim 1).

Hirsch et al. teaches that waxy starches, which are made up almost entirely of amylopectin, are used as the starting material for producing cross-linked starch since the amylose in non-waxy starch retrogrades on cooling and forms an irreversible gel (p.102, second paragraph). Hirsch et al. teaches that amylopectin allows for cross-linking agents to bind on neighboring anhydroglucose units, which prevents the granules from fully swelling ultimately disintegrating (p.102, second paragraph). Hirsch et al. expressly suggests the use of waxy maize starch for producing cross-linked starch (p.102, second paragraph). Hirsch et al. teaches that the covalent crosslinking network makes the starch granules tolerant to pH extremes and high shear processes (p.102, second paragraph).

Feil teaches the water-absorbing cross-linked starch can be used as sanitary product, medical aid such as bandages, coating for drugs to control the release rate by degradation of the hydrogel, humidity controlling agents for agriculture and horticulture, encapsulant for colorants, fragrances, perfumes, fertilizers and nutrients, pet litter and gel filtration columns (column 4, lines 48-58 and column 5, lines 1-5). Feil teaches water-absorbing polymers prepared from carboxymethyl cellulose or carboxymethyl starch (column 2, lines 21-31). Feil teaches any native granular starch, physically, enzymatically or chemically modified starch may be used (column 2, lines 53-58 and column 3, lines 1-12). Feil teaches the particle size is determined by mixing energy parameter, suggesting the size can be modified by altering mixing energy (column 4, lines 16-20). Feil teaches starch or the starch material cross-linked with sodium trimetaphosphate wherein the particle size is 300-400  $\mu\text{m}$  (column 5, example 1, lines 18-20 and claims 1 and 4). Feil teaches also teaches cross-linked starch material wherein the particle sizes range from 0.2 to 10 micron (column 7, lines 11-13).

It would have been obvious at the time the invention was made to have a particulate absorbent material comprising waxy starch that is cross-linked or self-entangled and composed mainly of amylopectin, wherein fiber or carboxymethyl cellulose is used as a co-absorbent.

Based on the teachings of the MPEP and KSR cited in the previous Office Action, by employing the rationale in (A) combining prior art elements according to known methods to yield predictable results, (B) simple substitution of one known element for another to obtain predictable results and (G) some teaching, suggestion, or

motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention; one having ordinary skill in the art would have been motivated to have a particulate absorbent material comprising waxy cassava starch that is cross-linked or self-entangled and composed mainly of amylopectin, wherein fiber or carboxymethyl cellulose is used as a co-absorbent.

From the teaching of Hirsch et al., one having ordinary skill in the art would have been motivated to substitute the cassava starch material that is cross-linked and extruded in the Grossman reference because waxy starch is known to be composed mainly of amylopectin. According to Hirsch et al., the amylopectin and cross-linking modification allows for the formation of starch granules that can absorb a high amount of water without collapsing or disintegrating the starch network. Although the Hirsch et al. reference does not expressly disclose the percent weight of amylopectin, this is an inherent property of the waxy starches.

From the teaching of Fiel, it is known that cross-linked starch materials, such as starch cross-linked with sodium trimetaphosphate, can be used in drug release formulations (i.e. active agent) as well as absorbent materials. As a result, one having ordinary skill would be motivated to use the waxy cassava starch that mainly contains amylopectin in lieu of the starch derivatives taught by Fiel, i.e. starch cross-linked with sodium trimetaphosphate and combine the starch with a co-absorbent such as carboxymethyl cellulose. Additionally, the Fiel reference teaches the water-absorbing starch material can be used in products that are well known by one of ordinary skill in

the art to be formed from fibers, like sanitary products such as sanitary napkins and medical aids such as bandages and swathes. Therefore, while Fiel does not expressly teach using a co-absorbent material, Fiel does suggest to one of ordinary skill in the art that the water-absorbing starch material can be combined with fiber containing products, which is inherently a co-absorbent material.

Moreover, since the Office does not have the facilities for preparing the claimed materials and comparing them with prior art inventions, the burden is on Applicant to show a novel or unobvious difference between the claimed product and the product of the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980), see MPEP 2112. Therefore, the cassava starch disclosed by Grossmann et al. is assumed to be self-entangled (or chain entangled), have a free swell capacity (FSC) of at least 13 g/g and a centrifuge retention capacity (CPC) of at least 10 g/g. Additionally, the FSC and CPC appear to be latent properties of the product as instantly claimed, wherein the product itself (extruded starch network having an amylopectin content greater than 90%, and particle size ranging from 89  $\mu\text{m}$  to 589  $\mu\text{m}$ ) is *prima facie* obvious for the reasons discussed above.

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teaching of the prior art.

### ***Response to Arguments***

Applicant's arguments filed 12 April 2011 have been fully considered but they are not persuasive.



Applicant has argued that the limitations of instant claim 1, presently amended, are *critical* functional requirements that produce results that are not obvious over the art of record. Applicant has pointed to tables 7 and 8 in the instant specification that show that cross-linked and non-crosslinked extruded high amylopectin starch having a particle size of between 89  $\mu\text{m}$  to 589  $\mu\text{m}$  exhibit a FSC of at least 13 g/g and a CRC of at least 10 g/g. Applicant has argued that the particles must have these properties otherwise they will not be suited for displacing non renewable petroleum based polyacrylate superabsorbent particles (SAPs) in the absorbent industry because conventional SAPs demonstrate at least this level of performance.

Applicant contends that the cited prior art does not render the combination claims obvious because Applicant's invention is directed towards a specific problem with specific solutions, whereas the prior art was directed towards solving different problems. Namely, Applicant contends that the problem to be solved was directed at designing particles from a starch that can be used as a substitute for SAPs derived from polyacrylates.

As suggested in the obviousness rejection, the FSC and CRC appear to be latent properties of the obvious product as well as the actual product taught by Grossmann et al. First, it should be noted that Applicant has not provided any evidence that the actual product taught by Grossman et al. does not have the instantly claimed FSC or CRC properties, which Applicant is trying to rely upon to distinguish the claim from the prior art. Instead Applicant has merely argued that they are skilled in the art of using extruders to produce modified starches and know that ordinary starch subject to

reactive extrusion including crosslinking with trimetaphosphate does not alone produce a material that would form a particle having a FSC of at least 13 g/g and a CRC of at least 10 g/g. However, Applicant has not addressed the fact that Grossman also teaches particle sizes within the instantly claimed range, since this clearly has an effect on FSC and CRC has pointed out by Applicant in tables 7 and 8.

Second, the product taught by Grossman is a particulate absorbent material comprising an extruded starch network, wherein said particulate absorbent material comprises particles ranging from 89  $\mu\text{m}$  to 589  $\mu\text{m}$ , wherein it would have been obvious to use starch that has an amylopectin content of at least 90% w/w based on Hirsch and Fiel for the reasons discussed above. Applicant has not argued that it would not have been obvious to combine the prior art references to arrive at the claimed elements as previously presented.

Rather Applicant's arguments are directed towards the FSC and CRC properties, which are clearly latent properties of the obvious product as evidenced by tables 7 and 8 of the instant specification; and that the product can displace polyacrylate based SAPs, an advantage of having particles of the claimed particle size and extruded amylopectin content. Merely recognizing additional advantages, i.e. the claimed product can displace polyacrylate based SAPs, or latent properties, i.e. having an FSC of at least 13 g/g and a CRC of at least 10 g/g, does not overcome a *prima facie* obviousness. Please see MPEP 2145, section II.

Thus, the rejection is hereby **maintained**.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 1, 3-9, 23-25, 28 and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 7, 15, 26 and 50 of copending Application No. 10/422881.**

Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 23-25 and 29 of the instant application are drawn to an absorbent composition comprising starch molecules comprising at least 90% (w/w) amylopectin and the particle size ranges from 89  $\mu\text{m}$  to 589  $\mu\text{m}$  in addition to a co-absorbent material. The co-absorbent material is selected from the group consisting of synthetic superabsorbent polymers, mannose containing polysaccharides, ionic polysaccharides, fibers and mixtures thereof.

Claims 7, 15, 26 and 50 of the '881 application are drawn to an absorbent composition comprising starch and one or more components selected from the group consisting of mannose containing cross-linked carboxyalkylated starches, ionic polysaccharides and gelling proteins or polypeptides, wherein the starch includes waxy maize starch (claim 15). Claim 26 recites that the particle size ranges from about 150  $\mu\text{m}$  to about 600  $\mu\text{m}$ , which overlaps with that of instant application, which lies within the range as instantly claimed.

It would have been obvious at the time the invention was made to formulate an absorbent composition comprising a starch material that is at least 90% (w/w) amylopectin and particle size ranges from 89  $\mu\text{m}$  to 589  $\mu\text{m}$  with a co-absorbent material since the same composition with particle size ranges lie within the range of the instant application, since this is taught in the '881 application.

Thus, claims 1, 3-9, 23-25, 28 and 29 are obvious in view of the '881 application.

This is a provisional obviousness-type double patenting rejection.

**Claims 1, 4-6, 23-25 and 28-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 21, 22 of copending Application No. 11/765859.**

Although the conflicting claims are not identical, they are not patentably distinct from each other. Claim 5 of the '859 application is directed towards extruding waxy maize starch. Claim 21 of the '859 application teaches the final polysaccharide is processed into a granular material having a particle size ranging from about 150  $\mu\text{m}$  to

about 850  $\mu\text{m}$ . Claim 22 of the '859 teaches the granular material should have a FSC of at least 7 g/g and a CRC of at least 5 g/g. Claims 25 and 26 of the '859 application are directed towards comprising at least one co-absorbent material, wherein the co-absorbent material is selected from the group consisting of synthetic superabsorbent polymers, starch-based absorbents, ionic polysaccharides, fibers and mixtures thereof. The specification of the '859 application teaches carboxymethyl starch as an anionic polysaccharide (p.16, paragraph 0061).

It would have been obvious at the time the invention was made to formulate an absorbent composition comprising a starch material that is at least 90% (w/w) amylopectin and particle size ranges from 89  $\mu\text{m}$  to 589  $\mu\text{m}$  with a co-absorbent material since the same composition with particle size ranges lie within the range of the instant application, since this is taught in the '859 application.

Claims 1, 4-6 and 23-25 are anticipated by claims 5, 21 and 22 of the '859 application. With respect to FSC and CRC, these are merely inherent properties of the absorbent particulates, which are identical as instantly claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

**Claims 1-9, 23-25 and 28-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 21, 22, 26, 33, 34 and 49 of copending Application No. 10/953873.**

Although the conflicting claims are not identical, they are not patentably distinct from each other. Claim 49 of the '873 application is drawn to an absorbent composition comprising an extruded cross-linked polysaccharide network wherein the particle size ranges from 88  $\mu\text{m}$  to 590  $\mu\text{m}$ . Claim 3 is drawn to a biodegradable polysaccharide, including amylopectin (i.e. waxy maize starch). "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists", see MPEP 2144.05 [R-5]. Claims 21, 22, 25 and 26 are drawn to the composition of claim 1 in addition to at least one co-absorbent material consisting of synthetic superabsorbent polymers, mannose-based polysaccharides, ionic polysaccharides, fibers and mixtures thereof. Claim 26 specifically teaches the fibers which are the same as instant claim 30. The specification of the '873 application teaches carboxymethyl cellulose as an example of an ionic polysaccharide (p.29, lines 10-28).

It would have been obvious at the time the invention was made to formulate an absorbent composition comprising a starch material that is at least 90% (w/w) amylopectin and particle size ranges from 89  $\mu\text{m}$  to 589  $\mu\text{m}$  with a co-absorbent material since the same composition with closely overlapping particle size ranges is taught in the '873 application.

Thus, claims 1-9, 23-25 and 28-30 are *prima facie* obvious over claims 21, 22, 26, 33, 34 and 49 of the '873 application.

This is a provisional obviousness-type double patenting rejection.

**Claims 1-9 and 23-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 7, 13, 14 and 16-24 of copending Application No. 11/814653.**

Although the conflicting claims are not identical, they are not patentably distinct from each other because. Claim 16 of the '653 application teaches an additive comprising discrete composite particles obtained by extrusion, and wherein the composite particles comprises a polysaccharide. Claims 5 and 7 teach the polysaccharide includes waxy maize starch, and cross-linked starch. Claim 14 of the '653 application teaches the particle size of the discrete composite ranges from 150  $\mu\text{m}$  to about 850  $\mu\text{m}$ . Lastly, claims 23 and 24 teach how to prepare the absorbent composition, and that the final product should have a CFC of at least 15 g/g. Claim 13 teaches the composition further comprises a binder, and example 5 of the instant specification teaches carboxymethyl cellulose as a binder.

Thus, claims 1-9 and 23-25 are *prima facie* obvious over claims 5, 7, 13, 14 and 16-24 of the '653 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Terminal Disclaimer***

With respect to the non-statutory double patenting rejection(s) made in this Office action, note as follows. The use of the terminology "defined in 35 U.S.C. §154 to §156 and §173" in a terminal disclaimer can result in the terminal disclaimer being found

improper. To address this, note that a proper terminal disclaimer need only disclaim the patent's remaining "full statutory term" as defined in 35 U.S.C., without specifying 35 U.S.C. 154 and 173. This is so, because the "full statutory term" inherently is a statutorily defined item.

Accordingly, the following language would be deemed acceptable:

The owner\*, \_\_\_\_\_, of \_\_\_\_\_ percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending **reference** Application Number \_\_\_\_\_, filed on \_\_\_\_\_, and as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the **reference** application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said **reference** application, "as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application," in the event that: any such patent: granted on the pending **reference** application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.



Note: the above language corresponds to PTO/SB/25 (07-09) (reproduced at page 1400-120 in Revision 7 (July 2008) of the 8<sup>th</sup> edition of the MPEP), but the reference to 35 U.S.C. 154 and 173 has been deleted.

### ***Conclusion***

In view of the rejections to the pending claims set forth above, no claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ms. BAHAR SCHMIDTMANN whose telephone number is (571)270-1326. The examiner can normally be reached on Mon-Thurs 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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